

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of the Claims:**

1. (currently amended) ~~A material identification method~~ A method for identifying an unknown material comprising:  
  
obtaining a multi-order spectrum from a sample of said unknown material ;  
  
comparing the multi-order spectrum to multi-order spectra for known ~~compositions~~ materials; and  
  
outputting an identification of the sample based on a correlation between the multi-order spectrum from the sample and the multi-order spectra for the known ~~compositions~~ materials.
2. (original) The method of claim 1, further comprising outputting one or more next closest identifications based upon the correlation between the multi-order spectrum from the sample and the multi-order spectra for known compositions.
3. (original) The method of claim 1, wherein the correlation is a linear and a rank correlation.
4. (original) The method of claim 1, wherein the correlation is a statistical correlation.

5. (currently amended) The method of claim 1, further comprising building a library of spectra for the known ~~compositions~~ materials.

6. (original) The method of claim 1, wherein the comparison can be performed against a spectral library or a portion of a spectral library.

7. (currently amended) The method of claim 1, wherein the multi-order sample spectrum comprises at least a first and a second order spectra.

8. (currently amended) The method of claim 1, wherein the multi-order sample spectrum comprises all spectra.

9. (original) The method of claim 1, further comprising outputting a correlation coefficient.

10. (original) The method of claim 1, further comprising displaying a summary of the correlation.

11. (currently amended) ~~A material identification system~~ A system for identifying an unknown material comprising:

a spectrometer adapted to obtain a multi-order spectrum from a sample of said unknown material;

a correlation module adapted to compare the multi-order spectrum to multi-order spectra for known ~~compositions~~ materials; and

an output device adapted to output an identification of the sample based on a correlation between the multi-order spectrum from the sample and the multi-order spectra for the known ~~compositions~~ materials.

12. (currently amended) The system of claim 11, wherein the output device outputs one or more next closest identifications based upon the correlation between the multi-order spectrum from the sample and the multi-order spectra for known ~~compositions~~ materials.

13. (original) The system of claim 11, wherein the correlation is a linear and a rank correlation.

14. (original) The system of claim 11, wherein the correlation is a statistical correlation.

15. (currently amended) The system of claim 11, wherein the output device as adapted to build a library of spectra for the known ~~compositions~~ materials.

16. (original) The system of claim 11, wherein the comparison can be performed against a spectral library or a portion of a spectral library.

17. (currently amended) The system of claim 11, wherein the multi-order sample spectrum comprises at least a first and a second order spectra.

18. (currently amended) The system of claim 11, wherein the multi-order

sample spectrum comprises all spectra.

19. (currently amended) The system of claim 11, wherein the output ~~module~~ device determines and outputs a correlation coefficient.

20. (currently amended) The system of claim 11, wherein the output ~~module~~ device cooperates with the correlation module to display a summary of the correlation.

21. (currently amended) A material identification system comprising:  
means for obtaining a multi-order spectrum from a sample;  
means for comparing the multi-order spectrum to multi-order spectra for known compositions; and  
means for outputting an identification of the sample based on a correlation between the multi-order spectrum from the sample and the multi-order spectra for the known compositions.